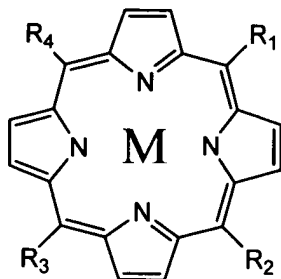
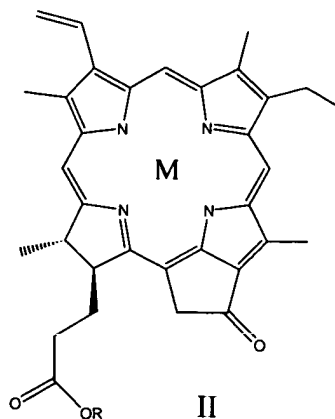


CLAIMS:

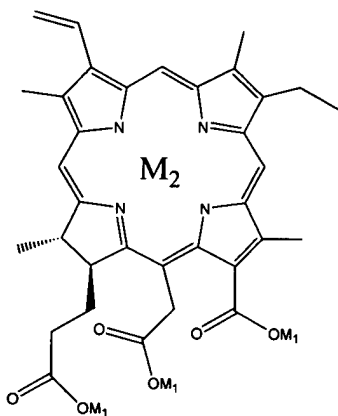
- 1: A composition for use as a pharmaceutical agent delivery carrier comprising of nanoparticles of a cyclic tetrapyrrolic compound and a pharmaceutical agent.
- 2: A composition of claim 1 wherein said cyclic tetrapyrrolic compound is a compound has formula I, II, III or IV:



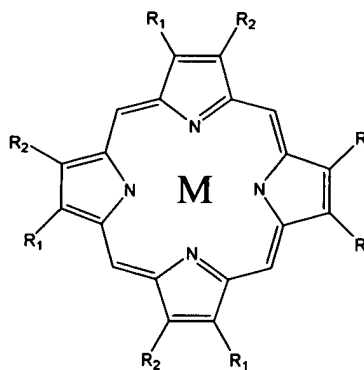
I



II



III



IV

Wherein:

In formula I, R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> are substitutes on the porphyrin ring and M is 2H<sup>+</sup> or a metal ion selected from ions of a group of metals consisting of Mg, Fe, Mn, Co, Ni, Cu, Zn, Sn, Cr, V, Ru, Pt or Pd.

In formula II, R is a substitute and M is  $2H^+$  or a metal ion selected from ions of a group of metals consisting of Mg, Fe, Mn, Co, Ni, Cu, Zn, Sn, Cr, V, Ru, Pt or Pd.

In formula III,  $M_2$  is  $2H^+$  or a metal ion selected from ions of a group of metals consisting of Mg, Fe, Mn, Co, Ni, Cu, Zn, Sn, Cr, V, Ru, Pt or Pd.  $M_1$  is  $H^+$  or a metal ion selected from ions of a group of metals consisting of Li, Na, or K.

In formula IV,  $R_1$  and  $R_2$  are substitutes and M is  $2H^+$  or a metal ion selected from ions of a group of metals consisting of Mg, Fe, Mn, Co, Ni, Cu, Zn, Sn, Cr, V, Ru, Pt or Pd.

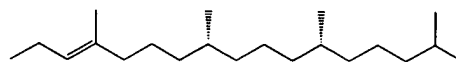
3: A composition of claim 1 wherein said pharmaceutical agent is a nucleic acid.

4: A composition of claim 3 wherein said nucleic acid is a DNA

5: A composition of claim 3 wherein said nucleic acid is a RNA

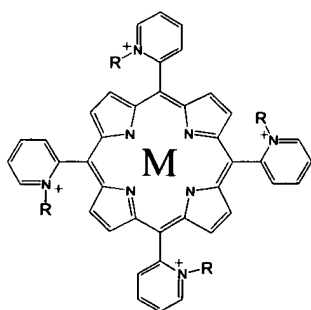
6: A composition of claim 1 wherein said pharmaceutical agent is a peptide, or a protein, or a non-soluble drug molecule.

7: A composition of claim 2, wherein R is

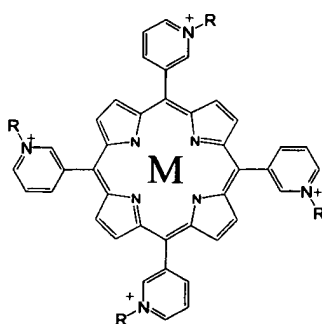


8: A composition of claim 1 wherein said the cyclic tetrapyrrolic compound is chlorophyll *a*

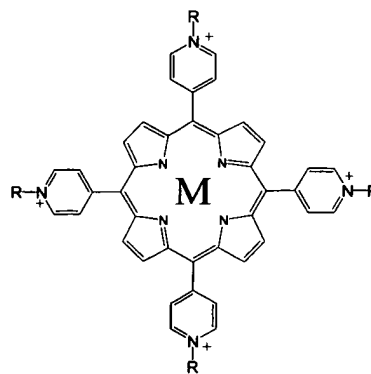
9: A composition of claim 1 wherein said the cyclic tetrapyrrolic compound is a compound has formula V, VI or VII:



V



VI



VII

Wherein: R is substitute on the porphyrin ring and M is  $2H^+$  or a metal ion selected from ions of a group of metals consisting of Mg, Fe, Mn, Co, Ni, Cu, Zn, Sn, Cr, V, Ru, Pt or Pd.

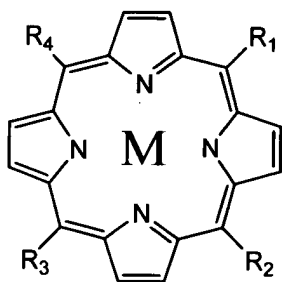
10: A composition of claim 9 wherein R is  $-C_nH_{2n+1}$ ,  $n=1-10$

11: A composition of claim 9 wherein said R is  $-(C_mH_{2m})_j(OC_mH_{2m})_pOR$ ,  $m, j, p = 1-10$ .

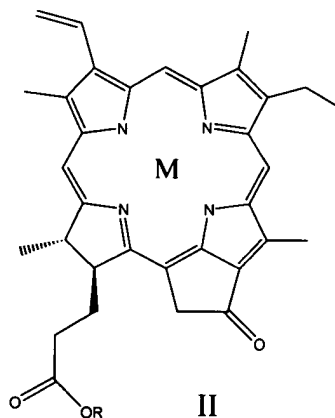
12: A method of delivering a pharmaceutical agent into a cell *in vivo* comprising the steps of:

- a. Loading a selected pharmaceutical agent into nanoparticles of a cyclic tetrapyrrolic compound.
- b. Contacting the selected cell with the complex under conditions to maintain the viability of the cell

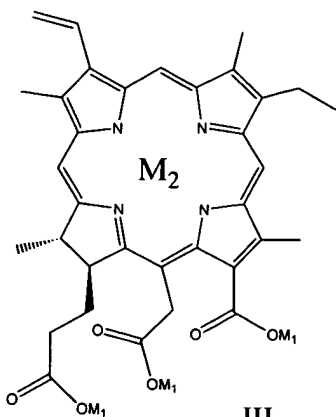
13: A composition of claim 12 wherein said cyclic tetrapyrrolic compound is a compound has formula I, II, III or IV:



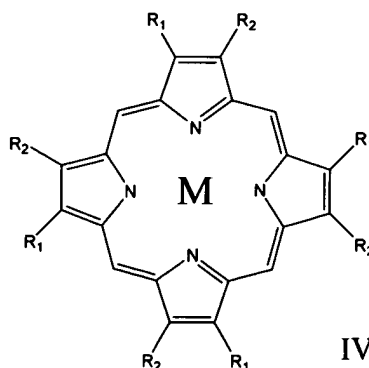
I



II



III



IV

Wherein:

In formula I,  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  are substitutes on the porphyrin ring and M is  $2H^+$  or a metal ion selected from ions of a group of metals consisting of Mg, Fe, Mn, Co, Ni, Cu, Zn, Sn, Cr, V, Ru, Pt or Pd.

In formula II, R is a substitute and M is  $2H^+$  or a metal ion selected from ions of a group of metals consisting of Mg, Fe, Mn, Co, Ni, Cu, Zn, Sn, Cr, V, Ru, Pt or Pd.

In formula III,  $M_2$  is  $2H^+$  or a metal ion selected from ions of a group of metals consisting of Mg, Fe, Mn, Co, Ni, Cu, Zn, Sn, Cr, V, Ru, Pt or Pd.  $M_1$  is  $H^+$  or a metal ion selected from ions of a group of metals consisting of Li, Na, or K.

In formula IV,  $R_1$  and  $R_2$  are substitutes and M is  $2H^+$  or a metal ion selected from ions of a group of metals consisting of Mg, Fe, Mn, Co, Ni, Cu, Zn, Sn, Cr, V, Ru, Pt or Pd.

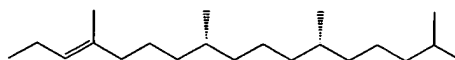
14: A composition of claim 12 wherein said pharmaceutical agent is a nucleic acid.

15: A composition of claim 14 wherein said nucleic acid is a DNA

16: A composition of claim 14 wherein said nucleic acid is a RNA

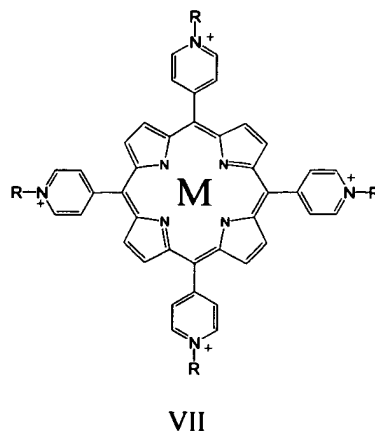
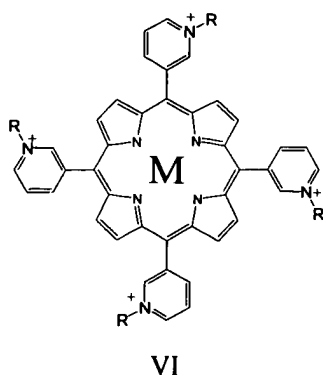
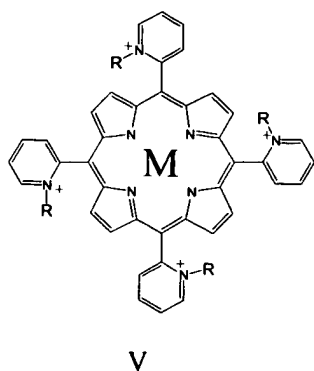
17: A composition of claim 12 wherein said pharmaceutical agent is a peptide, or a protein, or a non-soluble drug molecule.

18: A composition of claim 13, wherein R is



19: A composition of claim 12 wherein said the cyclic tetrapyrrolic compound is chlorophyll *a*

20: A composition of claim 12 wherein said the cyclic tetrapyrrolic compound is a compound has formula V, VI or VII:



Wherein: R are substitutes on the porphyrin ring and M is  $2H^+$  or a metal ion selected from ions of a group of metals consisting of Mg, Fe, Mn, Co, Ni, Cu, Zn, Sn, Cr, V, Ru, Pt or Pd.

21: A composition of claim 20 wherein R is  $-C_nH_{2n+1}$ ,  $n=1-10$

22: A composition of claim 20 wherein R is  $-(C_mH_{2m})_j(OC_mH_{2m})_pOR$ ,  $m, j, p=1-10$ .

23: A composition of claim 2 wherein said substitutes of formula I have at least one cationic groups and one non-polar group.

23: A composition of claim 13 wherein said substitutes of formula I have at least one cationic groups and one non-polar group.